

TVA's Nuclear at a Glance



TVA began building nuclear power plants in the 1960s, responding to the growing prosperity of the Tennessee Valley and the rising demand for power. Today, TVA's three nuclear plants—Browns Ferry, Sequoyah, and Watts Bar—provide about 30 percent of TVA's power supply.

With a total capacity of more than 6,900 megawatts, TVA's six operating reactors provide enough clean, safe and affordable electricity to serve more than four million homes in the Tennessee Valley.

Browns Ferry Nuclear Plant

Browns Ferry, located on Wheeler Reservoir in North Alabama, was TVA's first nuclear plant. Construction began in 1967 and Unit 1 began commercial operation in 1974. All three units were online by 1977.

Browns Ferry Unit 1 and the rest of the TVA nuclear fleet were shut down in 1985. Units 2 and 3 were restarted in the 1990s. The TVA Board approved the restart of Unit 1 in May 2002 after a detailed schedule and cost study. After an extensive recovery effort, Unit 1 became the nation's first nuclear unit to come online in the 21st century when it was restarted in May 2007.

Unit 1 was returned to service within the projected five-year schedule and at a cost of about \$1.9 billion. TVA spent more than four million work-hours preparing the engineering and design specifications and more than 15 million work-hours modifying, replacing, and refurbishing systems and components to ensure Browns Ferry Unit 1 was ready for restart.

Currently, Unit 1 provides 1,155 megawatts of power. TVA plans to eventually increase capacity of all three boiling water reactor units to 1,280 megawatts following approval from the Nuclear Regulatory Commission (NRC) and installation and implementation of modifications.

Operating licenses for Browns Ferry Units 1, 2, and 3 were renewed in May 2006, which will allow continued operation of the units until 2033, 2034, and 2036.



Watts Bar Nuclear Plant

TVA Watts Bar, a two-unit pressurized water reactor nuclear plant, is located on Chickamauga Reservoir in Spring City, Tennessee. Unit 1 at Watts Bar began operating in 1996, the last commercial nuclear unit in the United States to come online in the 20th century.

In August 2007, following detailed studies of energy needs, schedule, costs, environmental impacts, and financial risks, the TVA Board decided to complete construction of Watts Bar Unit 2 to help meet the Tennessee Valley's growing demand for power.

Initial construction on Unit 2 stopped in 1985. Completion will put an existing asset to work for TVA customers and is estimated to take five years and cost \$2.5 billion. When completed by 2013, Watts Bar Unit 2 will add 1,180 megawatts to the TVA power system.

Sequoyah Nuclear Plant

Sequoyah is a two-unit pressurized water reactor nuclear plant located on Chickamauga Reservoir near Chattanooga, Tennessee. Unit 1 began commercial operation in 1981 and Unit 2 in 1982.

TVA is preparing an application to renew the operating licenses for submission to the Nuclear Regulatory Commission in 2013. If renewed, the units 1 and 2 will be licensed to operate until 2040 and 2041 respectively.

Bellefonte Nuclear Site

Bellefonte is the site of an unfinished nuclear plant near Scottsboro, Alabama, where TVA evaluated the future alternatives for additional base load generation, including the completion of Units 1 and 2. Although completion of Unit 1 was identified as the preferred alternative in the environmental review, TVA has not decided to resume construction.

Of the alternatives evaluated for the Bellefonte site, completing the partially finished Unit 1 is the low-cost option primarily due to the availability of the existing infrastructure and plant equipment. In 2010, the cost to complete Unit 1 – now considered about 55 percent complete – was estimated as \$4.3 billion to \$4.7 billion.

In 2005, NuStart Energy selected Bellefonte for the development of the reference combined license application for the Westinghouse Advanced Passive (AP1000) nuclear reactor design. Although the reference designation transitioned to another utility's proposed plant, TVA continues to seek combined construction and operating licenses (COL) for two AP1000 units for possible future use at the site.